AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-104 (Cancelled).

105. (Original) An apparatus for detecting the movement of a fluid at plural shear rates using a decreasing pressure differential, said apparatus comprising:

a fluid source elevated above a horizontal reference position;

a capillary tube having a first end and a second end, said first end being in fluid communication with the fluid source through a first riser tube;

a second riser tube having one end coupled to said second end of said capillary tube and another end being exposed to atmospheric pressure, said second riser tube being positioned at an angle greater than zero degrees with respect to said horizontal reference position; and

a respective sensor for detecting the movement of the fluid, caused by said decreasing pressure differential, through said first and second riser tubes, respectively, at plural shear rates as the fluid moves from the fluid source, through said first riser tube, through said capillary tube and into said second riser tube, said movement of fluid comprising a laminar flow.

106. (Original) The apparatus of Claim 105 wherein one of said respective sensors monitors the laminar movement of the fluid over time in its respective riser tube and wherein the second one of said respective sensors detects a single data point of the laminar movement in its respective riser tube.

107. (Original) The apparatus of Claim 105 wherein said second riser tube is positioned vertically with respect to said horizontal reference position.

108. (Original) The apparatus of Claim 105 wherein the fluid is a non-Newtonian fluid.

109. (Original) The apparatus of Claim 107 wherein said movement of the fluid through said riser tubes comprises:

a rising fluid column in said second riser tube and wherein its corresponding sensor monitors the changing height of said rising column fluid over time, said height being defined as the distance between the top of said rising fluid column and said horizontal reference position; and

a falling fluid column in said first riser tube and wherein its corresponding sensor detects a single data point of said falling fluid column.

110. (Original) The apparatus of Claim 105 wherein said capillary tube comprises capillary tube dimensions and said first and second riser tubes comprise a riser tube dimension, said apparatus further comprising a computer, said computer being coupled to said respective sensors for receiving fluid movement data from said sensors and wherein said computer calculates the viscosity of the

fluid based on said capillary tube dimensions, said riser tube dimension and said fluid movement data.

111. (Original) The apparatus of Claim 110 wherein one of said respective sensors monitors the laminar movement of the fluid over time in its respective riser tube and wherein the second one of said respective sensors detects a single data point of the laminar movement in its respective riser tube.

112. (Original) The apparatus of Claim 110 wherein said second riser tube is positioned vertically with respect to said horizontal reference position.

113. (Original) The apparatus of Claim 110 wherein the fluid is a non-Newtonian fluid.

114. (Original) The apparatus of Claim 111 wherein said movement of the fluid through said riser tubes comprises:

a rising fluid column in said second riser tube and wherein its corresponding sensor monitors the changing height of said rising fluid column over time, said height being defined as the distance between the top of said rising fluid column and said horizontal reference position;

a falling fluid column in said first riser tube and wherein its corresponding sensor detects a single data point of said falling fluid column; and

said monitored changing height of said rising fluid column and said single data point of said falling fluid column forming said fluid movement data.

115. (Original) An apparatus for determining the viscosity of a non-Newtonian fluid over plural shear rates using a decreasing pressure differential, said apparatus comprising:

a non-Newtonian fluid source elevated above a horizontal reference position;

a capillary tube having a first end and a second end, said first end being coupled to the non-Newtonian fluid source through a first riser tube, said capillary tube having capillary tube dimensions;

a second riser tube having one end coupled to said first end of said capillary tube and another end being exposed to atmospheric pressure, said second riser tube being positioned at an angle greater than zero degrees with respect to said horizontal reference position, said first and second riser tubes comprising a riser tube dimension;

a respective sensor for detecting the movement of the non-Newtonian fluid, caused by said decreasing pressure differential, through said first and second riser tubes, respectively, at plural shear rates as the non-Newtonian fluid moves from the non-Newtonian fluid source, through said first riser tube, through said capillary tube and into said second riser tube in a laminar flow, said sensors generating data relating to the movement of the non-Newtonian fluid over time; and

a computer, coupled to said sensors, for calculating the viscosity of the non-Newtonian fluid based on said data relating to the movement of the non-Newtonian fluid over time, said capillary tube dimensions and said riser tube dimension.

116.(Original) The apparatus of Claim 115 wherein one of said respective sensors monitors the laminar movement of the fluid over time in its respective riser tube and wherein the second one of said respective sensors detects a single data point of the laminar movement in its respective riser tube.

117. (Original) The apparatus of Claim 115 wherein said riser tube is positioned vertically with respect to said horizontal reference position.

118. (Original) The apparatus of Claim 115 wherein said non-Newtonian fluid is the circulating blood of a living being and the non-Newtonian fluid source is the vascular system of the living being.

119. (Original) The apparatus of Claim 117 wherein said movement of the fluid through said riser tubes comprises:

a rising fluid column in said second riser tube and wherein its corresponding sensor monitors the changing height of said rising fluid column over time, said height being defined as the distance between the top of said rising fluid column and said horizontal reference position;

a falling fluid column in said first riser tube and wherein its corresponding sensor detects a single data point of said falling fluid column; and

said monitored changing height of said rising fluid column and said single data point of said falling fluid column forming said fluid movement data.

120.(Original) An apparatus for detecting the movement of a fluid at plural shear rates using a decreasing pressure differential, said apparatus comprising:

a fluid source elevated above a horizontal reference position;

a first riser tube having a first end exposed to atmospheric pressure and a second end, said second end being in fluid communication with the fluid source for generating a first fluid column in said first riser tube;

a capillary tube having a first capillary tube end and a second capillary tube end, said first capillary tube end being in fluid communication with the fluid source;

a second riser tube having one end coupled to said second capillary end and another end being exposed to atmospheric pressure for generating a second fluid column in said second riser tube, said second riser tube being positioned at an angle greater than zero degrees with respect to said horizontal reference position, and wherein a second fluid column is generated in said second riser tube; and

a respective sensor for detecting the movement of the fluid in said riser tubes, caused by said decreasing pressure differential when said second end of said first riser tube and said first capillary tube end are placed into fluid communication with each other, said movement of fluid from said first riser tube, through said capillary tube and into said second riser tube at plural shear rates forming a laminar flow.

121. (Original) The apparatus of Claim 120 wherein one of said respective sensors monitors

the laminar movement of the fluid over time in its respective riser tube and wherein the second one

of said respective sensors detects a single data point of the laminar movement in its respective riser

tube.

122. (Original) The apparatus of Claim 120 wherein said second riser tube is positioned

vertically with respect to said horizontal reference position.

123. (Original) The apparatus of Claim 120 wherein the fluid is a non-Newtonian fluid.

124. (Original) The apparatus of Claim 122 wherein said movement of the fluid through said

riser tubes comprises:

a rising fluid column in said second riser tube and wherein its corresponding

sensor monitors the changing height of said rising column fluid over time, said

height being defined as the distance between the top of said rising fluid column and

said horizontal reference position; and

a falling fluid column in said first riser tube and wherein its corresponding

sensor detects a single data point of said falling fluid column.

125. (Original) The apparatus of Claim 120 wherein said capillary tube comprises capillary

tube dimensions and said first and second riser tubes comprise a riser tube dimension, said

apparatus further comprising a computer, said computer being coupled to said respective sensors

for receiving fluid movement data from said sensors and wherein said computer calculates the

viscosity of the fluid based on said capillary tube dimensions, said riser tube dimension and said fluid movement data.

126. (Original) The apparatus of Claim 125 wherein one of said respective sensors monitors the laminar movement of the fluid over time in its respective riser tube and wherein the second one of said respective sensors detects a single data point of the laminar movement in its respective riser tube.

127. (Original) The apparatus of Claim 125 wherein said second riser tube is positioned vertically with respect to said horizontal reference position.

128. (Original) The apparatus of Claim 125 wherein the fluid is a non-Newtonian fluid.

129. (Original) The apparatus of Claim 126 wherein said movement of the fluid through said riser tubes comprises:

a rising fluid column in said second riser tube and wherein its corresponding sensor monitors the changing height of said rising fluid column over time, said height being defined as the distance between the top of said rising fluid column and said horizontal reference position;

a falling fluid column in said first riser tube and wherein its corresponding sensor detects a single data point of said falling fluid column; and

said monitored changing height of said rising fluid column and said single data point of said falling fluid column forming said fluid movement data.

130. (Original) An apparatus for determining the viscosity of a non-Newtonian fluid over

plural shear rates using a decreasing pressure differential, said apparatus comprising:

a non-Newtonian fluid source elevated above a horizontal reference position;

a first riser tube having a first end exposed to atmospheric pressure and a

second end, said second end being in fluid communication with the non-Newtonian

fluid source for generating a first fluid column in said first riser tube;

a capillary tube having a first capillary tube end and a second capillary tube

end, said first capillary tube end being in fluid communication with the non-

Newtonian fluid source, said capillary tube having capillary tube dimensions;

a second riser tube having one end coupled to said second capillary tube end

and another end being exposed to atmospheric pressure for generating a second fluid

column in said second riser tube, said second riser tube being positioned at an angle

greater than zero degrees with respect to said horizontal reference position, said first

and second riser tubes comprising a riser tube dimension;

a respective sensor for detecting the movement of the non-Newtonian fluid,

caused by said decreasing pressure differential when said second end of said first

riser tube and said first capillary tube end are placed into fluid communication with

each other, said movement of fluid from said first riser tube, through said capillary

tube and into said second riser tube at plural shear rates forming a laminar flow, said

sensors generating data relating to the movement of the non-Newtonian fluid over time; and

a computer, coupled to said sensors, for calculating the viscosity of the non-Newtonian fluid based on said data relating to the movement of the non-Newtonian fluid over time, said capillary tube dimensions and said riser tube dimension.

131. (Original) The apparatus of Claim 130 wherein one of said respective sensors monitors the laminar movement of the fluid over time in its respective riser tube and wherein the second one of said respective sensors detects a single data point of the laminar movement in its respective riser tube.

132. (Original) The apparatus of Claim 130 wherein said riser tube is positioned vertically with respect to said horizontal reference position.

133. (Original) The apparatus of Claim 130 wherein said non-Newtonian fluid is the circulating blood of a living being and the non-Newtonian fluid source is the vascular system of the living being.

134. (Original) The apparatus of Claim 132 wherein said movement of the fluid through said riser tubes comprises:

a rising fluid column in said second riser tube and wherein its corresponding sensor monitors the changing height of said rising fluid column over time, said height being defined as the distance between the top of said rising fluid column and said horizontal reference position;

a falling fluid column in said first riser tube and wherein its corresponding

sensor detects a single data point of said falling fluid column; and

said monitored changing height of said rising fluid column and said single

data point of said falling fluid column forming said fluid movement data.